REMARKS

Claims 1-5 and 8-14 are pending. No new matter has been added by way of the present submission. For instance, claims 6 and 7 have been cancelled. Also, claims 1 and 8-10 have been amended. Support for the amendment of claim 1 can be found in the original claims 6 and 7. Claims 8 and 9 have been amended for clarity. Support for the amendment of claim 10 can be found in the original claim 7. Thus, no new matter has been introduced into the claims.

In view of the following remarks, Applicants respectfully request that the Examiner withdraw the rejection under 35 U.S.C. § 103 and allow the currently pending claims.

Issues under 35 U.S.C. § 103(a)

Claims 1-14 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over **Kim *et al.* (Chem. Eur. J 2001, pp 176)**, in view of **Tajima *et al.* (Nucleic Acids Res. 2002:2, pp265-266)**. Applicants respectfully traverse the rejection.

The Present Invention

The claimed invention is drawn to a preparation for accelerating an exchange reaction between a nucleotide sequence at a specific site of a double stranded DNA or RNA and its homologous nucleotide sequence, comprising a cationic polymer of guanidinated poly(L-lysine)-graft-dextran (guanidinated PLL-g-Dex) having a guanidine group-containing main chain and a dextran-containing side chain as an active ingredient.

Distinctions Over the Cited Art

Kim *et al.* (Chem. Eur. J 2001, pp 176)

The Kim *et al.* reference teaches the use of a cationic polymer comprised of poly(L-lysine)graft-dextran. However, Kim *et al.* do not teach a poly(L-lysine)graft-dextran polymer having a guanidine group on the main chain. Kim *et al.* do not teach or suggest the addition of a guanidine group to said dextran polymer for any molecular biology method steps, much less for accelerating an exchange reaction of a nucleotide sequence. Kim *et al.* do not provide predictable guidance for a poly(L-lysine)graft-dextran polymer having a guanidine group on the main chain and how it would behave under conditions for an exchange reaction between a nucleotide sequence at a specific site of a double stranded DNA or RNA **or** properties of said poly(L-lysine)graft-dextran polymer.

Tajima *et al.* (Nucleic Acids Res. 2002:2, pp265-266)

In regards to the Tajima *et al.* reference, the shortcomings of Kim *et al.* are not complemented by the disclosure of Tajima *et al.*, since there is no teaching of a guanidine group on the main chain of a dextran polymer.

The arginine-rich peptides taught by Tajima *et al.* such as P16, PLR50, PLL16 and PLL40 are not a comb-type cationic polymer, like those disclosed in Kim *et al.* or in the present invention as claimed, but are structurally different polymers, i.e., these are straight-chain peptides, as shown in Figure 1 (b). Because these references encompass such distinct cationic polymers, one skilled in the art could not obtain from such a combination any rational reason to

arrive at the particular poly(L-lysine)graft-dextran guanidine polymer claimed. Additionally, none of the references teach the substitutions of known functional groups such as guanidine for another to obtain predictable results yielding the claimed poly(L-lysine)graft-dextran guanidine polymer.

The Examiner's attention is also directed to the data in Figure 2 of Tajima *et al.*, wherein the exchange ratio of the arginine-rich peptides such as P16 and PLR50 are at most several times higher than the lysine peptides such as PLL40 and PLL16.

In contrast, the guanidinated poly(L-lysine)-graft-dextran (guanidinated PLL-g-Dex) of the present invention shows a high accelerating effect so as to increase the nucleotide chain-exchange ratio by several tens to several hundred times over the conventional PLL-g-Dex of the prior art, such as that taught by Kim *et al.* (See Figure 8). Neither Kim *et al.* nor Tajima *et al.* provide any information on how a guanidine group behaves when linked to a dextran polymer, and in particular to a poly(L-lysine)graft-dextran polymer.

Legal Standard for Determining Prima Facie Obviousness

M.P.E.P. § 2143 sets forth the guidelines in determining obviousness. The Examiner has to take into account the factual inquiries set forth in *Graham v. John Deere*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), which has provided the controlling framework for an obviousness analysis. The four *Graham* factors of: determining the scope and content of the prior art; ascertaining the differences between the prior art and the claims that are at issue; resolving the

level of ordinary skill in the pertinent art; and evaluating any evidence of secondary considerations (e.g., commercial success; unexpected results). 383 U.S. 1, 17, 148 USPQ 459, 467 (1966). Second, the Examiner has to provide some rationale for determining obviousness, wherein M.P.E.P. § 2143 set forth some rationales that were set established in the recent decision of *KSR International Co. v Teleflex Inc.*, 82 USPQ2d 1385 (U.S. 2007).

With respect to the present invention; it is clear that there differences between the prior art and the newly amended claims. That is, the combination of Kim *et al.* and Tajima *et al.* do not teach or fairly suggest the presently claimed cationic polymer of guanidinated poly(L-lysine)-graft-dextran (guanidinated PLL-g-Dex) having a guanidine group-containing main chain and a dextran-containing side chain as an active ingredient. Applicants respectfully submit that there would be no rational reason for the artisan to modify the combined teachings of Kim *et al.* and Tajima *et al.* to obtain the present invention, and as such, a *prima facie* case of obviousness cannot be said to exist.

Furthermore, even assuming *arguendo* that there exists a *prima facie* case of obviousness, Applicants have provided evidence of unexpected results to overcome the *prima facie* case. As mentioned above, the guanidinated poly(L-lysine)-graft-dextran (guanidinated PLL-g-Dex) of the present invention shows a high accelerating effect so as to increase the nucleotide chain-exchange ratio by several tens to several hundred times over the conventional PLL-g-Dex of the prior art, such as that taught by Kim *et al.* (See Figure 8). As such, reconsideration and withdrawal of the rejection are respectfully requested.

CONCLUSION

In view of the above amendment, applicant believes the pending application is in condition for allowance.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Eggerton Campbell Reg. No. 51307 at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.147; particularly, extension of time fees.

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Respectfully submitted,

By _____

Marc S. Weiner
Registration No.: 32,181
BIRCH, STEWART, KOLASCH & BIRCH, LLP
8110 Gatehouse Road
Suite 100 East
P.O. Box 747
Falls Church, Virginia 22040-0747
(703) 205-8000
Attorney for Applicant